August 2, 2018

VIA ECFS

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Re: Wireless E911 Location Accuracy Requirements (PS Docket No. 07-114)

Dear Ms. Dortch:

In accordance with the Federal Communications Commission's ("FCC" or the "Commission") Wireless E911 Location Accuracy Requirements adopted in the Commission's *Fourth Report and Order*[1], specifically 47 C.F.R. §§ 20.18(i)(4)(i) and 20.18(i)(4)(ii), Southern Communications Services, Inc. d/b/a Southern Linc ("Southern Linc" or the "Company") hereby files the attached progress report (the "Second Report") in the above-referenced docket.

Please contact me at (678) 443-1518 if you have any questions.

Respectfully,

/s/ Kasey Chow

Kasey Chow
Attorney

Southern Linc
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[1] *See Wireless E911 Location Accuracy Requirements*, Fourth Report and Order, 30 FCC Rcd 1259 (2015) (*Fourth Report and Order*) and rules 47 C.F.R. § 20.18(i) *et seq*.

SOUTHERN LINC
SECOND PROGRESS REPORT

Southern Communications Services, Inc. d/b/a Southern Linc ("Southern Linc") is committed to the FCC's goals of improving E911 location accuracy to better serve its customers during emergencies. Southern Linc is meeting compliance deadlines prescribed by the FCC's *Fourth Report and Order*[2], which includes the requirement that CMRS providers report their progress towards improving indoor location accuracy.[3] This Second Report outlines the status of Southern Linc's progress towards meeting the Commission's indoor location accuracy goals.

A. Compliance with FCC Location Accuracy Requirements

Southern Linc has met all location accuracy requirements to date and has submitted reporting and compliance documentation to the FCC demonstrating such performance:

Live 911 Call Data

In accordance with 47 C.F.R. § 20.18(i)(3)(ii), Southern Linc collects and reports aggregate data on each location technology it uses for live 911 calls in the City of Atlanta. Southern Linc submits such information every 6 months to the FCC, NENA, APCO, and NASNA.

Southern Linc uses A-GPS location technology on its iDEN network and has submitted its live 911 call data reports, for each respective preceding 6-month period, on February 3, 2017; August 1, 2017; February 1, 2018; and August 1, 2018.

In accordance with 47 C.F.R. § 20.18(i)(3)(iii), Southern Linc retains all testing and live 911 call data gathered for a period of two (2) years.

Dispatchable Location

In accordance with 47 C.F.R. § 20.18(i)(2)(i)(B)(2), Southern Linc provided dispatchable location or x/y location within 50 meters for 50% of all wireless 911 calls by April 3, 2018.

Additionally, in accordance with 47 C.F.R. § 20.18(i)(2)(iii), Southern Linc submitted its certification to the FCC that as of April 3, 2018, it provides service and reports live call

[2] *See Wireless E911 Location Accuracy Requirements*, Fourth Report and Order, 30 FCC Rcd 1259 (2015) (*Fourth Report and Order*).
[3] *See* 47 C.F.R. §§ 20.18(i)(4)(i) – (ii).

data from one of six Test Cities; it is providing dispatchable location or x/y location information within 50 meters for at least 50% of all wireless 911 calls; it has deployed the indoor location technology used in its network consistently with the manner in which such technology has been tested in the test bed; and its deployment of location technologies throughout its coverage area is consistent with its deployment of the same technologies in the areas that are used for live call data reporting.[4]

PSAP-Requested Data

Barometric Pressure

In accordance with 47 C.F.R. § 20.18(i)(2)(ii)(A), Southern Linc will make uncompensated barometric data available to Public Safety Answering Points ("PSAPs") with respect to any 911 call placed from any handset that has the capability to deliver barometric sensor information.

At the time of this filing, no Southern Linc handset currently offered has the capability to deliver barometric sensor information. When Southern Linc's handset offering includes handsets with the capability to deliver such information, the Company will make such information available to requesting PSAPs.

Confidence and Uncertainty

In accordance with 47 C.F.R. § 20.18(j), Southern Linc makes x- and y-axis (latitude, longitude) confidence and uncertainty (C/U) data for all wireless 911 calls – whether placed from indoors or outdoors – available to PSAPs upon request, on a per call basis, with a uniform confidence level of 90%.

Live 911 Calls

In accordance with 47 C.F.R. § 20,18(k), Southern Linc collects and retains information on all wireless 911 calls placed on its network, including the positioning source method used to provide a location fix associated with the call, for a period of two (2) years, and makes such data available to PSAPs upon request.

Progress Reports

In accordance with 47 C.F.R. §§ 20.18(i)(4)(i) and (ii), Southern Linc submitted its *Initial Implementation Plan and Repor*t on August 3, 2017[5] and submits this Second Report

[4] *See Southern Linc Indoor Location Accuracy Certification*, PS Docket 17-78, filed June 28, 2018.

[5] *See Southern Linc Implementation Plan and Progress Report*, PS Docket 07-114, filed August 3, 2017 (*Initial Implementation Plan and Report).*

indicating the progress the Company has made consistent with its *Initial Implementation Plan and Report*.

B. Improving Location Accuracy

In addition to the demonstrated compliance with the FCC's location accuracy requirements, Southern Linc is diligently working to improve indoor location accuracy by engaging in the implementation of the National Emergency Address Database ("NEAD"), working with its trusted 911 emergency services vendor West Safety Services ("West"), evaluating deploying additional location technologies on its LTE network, including device-based location technologies and emerging location technologies, and aiding in standards development.

1. NEAD

Population of the NEAD with wireless access point information and initial testing for querying the NEAD is occurring among the nationwide wireless carriers first. Non-nationwide carriers, Southern Linc included, will be able to populate the NEAD and gain access to query the NEAD at a later time. At such time, Southern Linc intends to contribute the necessary information for stationary Southern Linc-maintained WiFi access points to be populated into the NEAD. Southern Linc will work with NEAD, LLC and West for training and technical data requirements for populating the NEAD with access points.

The NEAD solution also requires that devices transmit available WiFi and other access point information to the service provider's network when the user calls 911. Some wireless devices in the marketplace today have the capability to identify the presence of access points within relatively close proximity. Southern Linc has incorporated this capability into the specifications for its devices and works closely with its device manufacturer to ensure incorporation of this capability into any future device models as well.

2. West Safety Services

Southern Linc currently retains West as its 911 emergency services vendor. West provides Southern Linc with a Location Performance Management ("LPM") tool that compiles and aggregates complex data sets to help the Company manage and report on location accuracy and network performance. West's LPM tool provides features that enable Southern Linc to better manage 911 caller location data and identify areas for improvement by:

- Pinpointing location performance issues
- Optimizing network functionality to certify and trust location performance
- Performing proactive risk management of position determination issues

- Auditing Key Performance Indicators, call results, and location server performance
- Reporting compliance with the FCC's location accuracy rules
- Measuring baseline accuracy results in test areas

Additionally, West's LPM tool provides Southern Linc with three (3) reports to assess FCC compliance:

1. Live Call Data Report – provides live call data yields by technology and morphology semi-annually for the City of Atlanta, a test bed city in which Southern Linc operates
2. 50m Accuracy Report – provides data for the City of Atlanta and weights the indoor test bed data derived from Test Bed, LLC against the Company's live 911 call distribution within the reporting area to determine a final location accuracy metric
3. PSAP Report – provides the total number of calls delivered to a specific PSAP and can be generated on demand for a given period as needed

Data compiled by West aligns with ATIS 05000031 recommendations, which provide the option to blend outdoor accuracy test data with indoor test bed data and the Company's live 911 call data.

Southern Linc and West will continue to incorporate technological advancements to enhance the safety of emergency callers by delivering accurate and useful location information to emergency dispatch personnel, in keeping with FCC requirements and timelines.

3. Location Technologies

Southern Linc's current A-GPS solution uses one global navigation satellite system ("GNSS") constellation for 911 location accuracy, the U.S. government-operated GPS. If necessary government coordination efforts enable service providers to use GLONASS or other non-U.S. GNSS constellations for 911 location accuracy purposes and if such use is determined by the Company to be appropriate and sufficiently secure, then Southern Linc will implement this enhanced A-GPS solution.

Southern Linc is currently transitioning from its iDEN network to an all-LTE platform. This transition enables Southern Linc to consider deployment of additional location technologies, both network- and device- based, beyond A-GPS, to improve indoor location accuracy. Southern Linc continues to evaluate the viability of location technologies such as Device Based Hybrid ("DBH"), Observed Time Difference of Arrival ("OTDOA"), WiFi/A-GPS hybrid solutions, and beacon/A-GPS hybrid solutions.

DBH technologies take advantage of various technologies – A-GPS, Bluetooth, WiFi, accelerometers, barometers, etc. – to generate highly accurate x/y coordinates to transmit to PSAPs. Southern Linc awaits vendors to provide DBH solutions in additional devices in the coming years. OTDOA uses highly detectable Positioning Refence Signals ("PRS") to estimate a caller's location by using the time differences between PRS received from known locations of cell sites. Southern Linc will deploy OTDOA in its LTE network which will improve location accuracy as additional LTE cell sites are deployed. Southern Linc remains open to evaluating implementation of other emerging location technologies as they become available.

Southern Linc is also assessing implementation of location solutions provided by companies like LaaSer Critical Communications, LLC ("LaaSer") and RapidSOS, Inc. ("RapidSOS"). LaaSer has a patented enhanced location information and call routing platform that is designed to deliver accurate location information using existing infrastructure. Southern Linc is still evaluating implementation of this location technology solution.

RapidSOS has developed a mobile application called *Haven* that determines the caller's precise location using all available sensors on the device (e.g., GPS, WiFi, cell towers, Bluetooth beacons, barometric pressure sensor information) and routes the call to the correct PSAP based on the device location rather than by closest cell tower. Southern Linc is still evaluating potential implementation.

Southern Linc supports the development and testing of new z-axis location technologies as well. The Company will evaluate the feasibility of implementation of such z-axis solutions in its network or devices as appropriate. Southern Linc looks forward to assessing the data from the test bed when it conducts testing of z-axis technologies developed by vendors such as Polaris and NextNav. The Company will evaluate using z-axis technologies that are verified by the test bed to be compliant with future z-axis accuracy metrics approved by the FCC.

4. Standards Development

Southern Linc has been involved in standards development efforts related to 911 location accuracy and has participated in working groups within ATIS and CTIA. Southern Linc has assigned staff to represent the Company in key standards activities to support the industry's development of 911 indoor location accuracy improvement capabilities standards. Key standards activity occurs in ATIS ESIF's Emergency Services and Methodologies Subcommittee ("ESM") and ATIS Emergency Location Task Force ("ELOC").

ATIS ESIF ESM is responsible for performance metrics, test methodologies and source codes for 911 network deployment, establishing morphologies within testing regions, including determination of Test Bed location requirements and blending methodologies for assessing

accuracy compliance. ATIS ELOC is responsible for developing the interface standards, functional decomposition, protocol and procedures for handling the technologies used to improve 911 location determination, which includes reusing and enhancing existing protocols to support new location technologies, and developing new protocols.

Additionally, Southern Linc participated in working groups established by CTIA for oversight of the work establishing the NEAD and Test Bed. CTIA working groups included Test Bed, NEAD, Z-Axis, Standards, PSAP Implementation, Dispatchable Location Demonstration, and NEAD Outreach. Southern Linc participated in the NEAD Working Group which drafted and developed the NEAD Privacy and Security Plan consistent with FCC rules.[6] The FCC approved the NEAD Privacy and Security Plan on November 13, 2017.[7]

C. Conclusion

Southern Linc continues to meet the FCC's Wireless E911 Location Accuracy Requirements. The Company will continue to participate in various standards activities and work diligently with other stakeholders to improve indoor location accuracy. Southern Linc remains committed to improving location accuracy to better serve its customers during emergencies and will implement the technologies and policies necessary to do so.

Michael D. Rosenthal
Director of Legal & External Affairs

August 2, 2018

[6] *Fourth Report and Order* at ¶ 69.
[7] *See In the Matter of Wireless E911 Location Accuracy Requirements*, Memorandum Opinion and Order, PS Docket 07-114 (adopted November 13, 2017) (rel. November 14, 2017).